

WE CLAIM:

1. A multicolored effect yarn comprising:

a) a core yarn consisting of a multiplicity of bulked continuous filament (BCF) singles yarns wherein at least one of said BCF singles yarns is of a different color than any of the other BCF singles yarns and wherein each BCF singles yarn is individually air-jet entangled at a first frequency of entanglement points and with a first degree of entanglement at said entanglement points and wherein said multiplicity of individually air-jet entangled BCF singles yarns are subsequently air-jet entangled together at a second, lower, frequency of entanglement points and with a second, lower, degree of entanglement at said entanglement points, wherein said core yarn exhibits substantially zero twist; and

b) a wrapper yarn helically wound around said core yarn wherein said wrapper yarn is the same or differently colored than any of the said multiplicity of said BCF singles yarns in said core yarn and wherein the denier of said wrapper yarn is less than that of any of said multiplicity of said singles yarns in said core yarn.

2. A multicolored effect yarn according to claim 1, wherein said multiplicity of said BCF singles yarns comprises between 2 and 8 of said BCF singles yarns.

3. A multicolored effect yarn according to claim 1, wherein said BCF singles yarns have a denier of about 400 to about 1400.

4. A multicolored effect yarn according to claim 3, wherein said BCF singles yarns are individually air-jet entangled at between about 40 and about 80 entanglement points per meter.

5. A multicolored effect yarn according to claim 4, wherein said individually air-jet entangled BCF singles yarns have a degree of entanglement at said entanglement points of between about 75% and about 100%.

6. A multicolored effect yarn according to claim 5, wherein said multiplicity of air-jet entangled BCF singles yarns are together subsequently air jet entangled at between about 1 and about 2 entanglement points per meter.

7. A multicolored effect yarn according to claim 6, wherein said air-jet entangled multiplicity of said air-jet entangled BCF singles yarns has a degree of entanglement at said entanglement points of between about 10% and about 25%.

8. A multicolored effect yarn according to claim 1, wherein said wrapper yarn is selected from the set of partially oriented yarns, flat drawn yarns and draw-textured yarns.

9. A multicolored effect yarn according to claim 8, wherein said wrapper yarn is a partially oriented yarn.

10. A multicolored effect yarn according to claim 9, wherein said wrapper yarn has a denier of between about 150 and about 250.

11. A multicolored effect yarn according to claim 10, wherein said wrapper yarn is wrapped about said core at between about 40 and about 80 turns per meter.

12. A multicolored effect yarn according to claim 1, wherein said multiplicity of BCF singles yarns and said wrapper yarn are made from a melt-spinnable polymer selected from the group consisting of polyamides, polyesters and polyolefins.

13. A multicolored effect yarn according to claim 12, wherein said polyamide is selected from the group consisting of nylon 6, nylon 11, nylon 12, nylon 6,6, nylon 6,10, nylon 6,12, and copolymers and blends thereof.

14. A multicolored effect yarn according to claim 12, wherein said polyester is selected from the group consisting of poly(ethylene terephthalate), poly(propylene terephthalate), poly(butylene terephthalate), poly(cyclohexane dimethanol terephthalate), poly(ethylene naphthalate), poly(propylene naphthalate), poly(ethylene succinate), poly(ethylene adipate), poly(hydroxybutyrate), poly(lactic acid), and copolymers and blends thereof.

15. A multicolored effect yarn according to claim 12, wherein said polyolefin is selected from the group consisting of polyethylene, polypropylene, and copolymers and blends thereof.

16. A multicolored effect yarn according to claim 1, wherein said multiplicity of said BCF singles yarns and said wrapper yarn are made from the same polymer.

17. A multicolored effect yarn according to claim 1, wherein said multiplicity of said BCF singles yarns are made from a different polymer to that used to make said wrapper yarn.

18. A multicolored effect yarn according to claim 1 wherein said core and wrapper the yarns are solution-dyed yarns.

19. A process for the manufacture of a multicolored effect yarn, comprising the steps of:

a) individually air-jet entangling a multiplicity of bulked continuous fiber (BCF) singles yarns at a first frequency and at a first degree of entanglement, wherein at least one of said BCF singles yarns is of a different color than any other of the said multiplicity of BCF singles yarns;

b) bringing together said multiplicity of individually air-jet entangled BCF singles yarns in a parallel bundle with substantially zero twist;

c) air-jet entangling said bundle at a second frequency and second degree of entanglement wherein said second frequency and said second degree of entanglement are both lower than said first frequency and said first degree of entanglement to form a core yarn of said multicolored effect yarn;

d) helically wrapping a wrapper yarn around said core yarn in a direct cabling device, wherein said wrapper yarn may be the same or differently colored than any of said multiplicity of said BCF singles yarns in

said core, wherein the denier of said wrapper yarn is less than that of any of said BCF singles yarns; and

e) winding up said multicolored effect yarn.

20. A process according to claim 19, wherein said multiplicity of singles yarns comprises between 2 and 8 of said singles yarns.

21. A process according to claim 19, wherein said BCF singles yarns have a denier of between about 400 and about 1400.

22. A process according to claim 21, wherein said BCF singles yarns are individually air-jet entangled at between about 40 and about 80 entanglement points per meter.

23. A process according to claim 22, wherein said BCF singles yarns are air-jet entangled such as to provide a degree of entanglement at said entanglement points of between about 75% and about 100%.

24. A process according to claim 23, wherein said multiplicity of said air-jet entangled BCF singles yarns are together air-jet entangled at between about 1 and about 2 entanglement points per meter.

25. A process according to claim 24, wherein said multiplicity of said air-jet entangled BCF singles yarns are air-jet entangled such as to provide a degree of entanglement at said entanglement points of between about 10% and about 25%.

26. A process according to claim 19, wherein said wrapper yarn is selected from the set of partially oriented yarns, flat drawn yarns and draw-textured yarns.

27. A process according to claim 26, wherein said wrapper yarn is a partially oriented yarn.

28. A process according to claim 26, wherein said wrapper yarn has a denier of between about 150 and about 250.

29. A process according to claim 28, wherein said wrapper yarn is helically wrapped around said core at between about 40 and about 80 turns per meter.

30. A process according to claim 19, wherein said multiplicity of said BCF singles yarns and said wrapper yarn are made from a melt-spinnable polymer selected from the group consisting of polyamides, polyesters and polyolefins.

31. A process according to claim 30, wherein said polyamide is selected from the group consisting of nylon 6, nylon 11, nylon 12, nylon 6,6, nylon 6,10, nylon 6,12, and copolymers and blends thereof.

32. A process according to claim 30, wherein said polyester is selected from the group consisting of poly(ethylene terephthalate), poly(propylene terephthalate), poly(butylene terephthalate), poly(ethylene adipate), poly(ethylene sebacate), poly(hydroxybutyrate), poly(lactic acid), and copolymers and blends thereof.

33. A process according to claim 30, wherein said polyolefin is selected from the group consisting of polyethylene, polypropylene, and copolymer and blends thereof.

34. A process according to claim 19, wherein said multiplicity of said BCF singles yarns and said wrapper yarn are made from the same polymer.

35. A process according to claim 19, wherein said multiplicity of said BCF singles yarns are made from a polymer different to that used to make said wrapper yarn.

36. A process according to claim 19, wherein said core yarn is processed through said direct cabling device at tension of between about 150 to 250 grams.

37. A multicolored effect yarn according to claim 19 wherein said core and wrapper the yarns are solution-dyed yarns.

38. A carpet comprising at least one multicolored effect yarn comprising:

a) a core yarn consisting of a multiplicity of bulked continuous filament (BCF) singles yarns wherein at least one of said BCF singles yarns is of a different color than any of the other BCF singles yarns and wherein each BCF singles yarn is individually air-jet entangled at a first frequency of entanglement points and with a first degree of entanglement at said entanglement points and wherein said multiplicity of individually air-jet entangled BCF singles yarns are subsequently air-jet entangled together at a second, lower, frequency of entanglement points and with a second, lower, degree of entanglement at said entanglement points, wherein said core exhibits substantially zero twist; and

b) a wrapper yarn helically wound around said core yarn wherein said wrapper yarn is the same or differently colored than any of the said multiplicity of said BCF singles yarns in said core yarn and wherein the denier of said wrapper yarn is less than that of any of said multiplicity of said singles yarns in said core yarn.

39. A carpet according to claim 38, wherein core yarn and wrapper yarn of said multicoloured effect yarn are solution dyed yarns.